

*Linguistics*

## Kartvelian and Indo-European: A Typological Comparison of Reconstructed Linguistic Systems

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**ABSTRACT.** ROMAN JAKOBSON's statement in his famous and most stimulating paper "Typological studies and their contribution to historical comparative linguistics" to the effect that... "languages are isomorphic: common principles underlie their structure" is a vital and important postulate of present-day linguistics. Typological studies are called upon to reveal this isomorphism, to look for the invariant in a variation and to establish linguistic universals on different levels of language structure. © 2008 Bull. Georg. Natl. Acad. Sci.

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Language typology has special implications for diachronic studies, and Roman Jakobson was one of the first to recognize its importance for historical comparative linguistics.

The ultimate aim of historical comparative linguistics is the reconstruction of earlier language states with a view to clarifying the ways of provenance and developments of historically attested cognate linguistic systems.

The process of reconstruction may be viewed as a retrospective motion from state to state "with a structural scrutiny of each of these states with respect to the typological evidence". This retrospective progression must go on until we reach a language state from which all of the attested cognate linguistic systems may be deduced on the assumption of a set of typologically plausible and consistent transformations. Such structural transformations may be characterized as 'vertical transformations' or 'diachronic transformations' (in contradistinction to 'horizontal transformations' which generate new constructions within the same system) as a result of which different related language systems are obtained from the common structural patterns. These structural patterns arrived at by special reconstructive

techniques reflect, of necessity partially and incompletely, a linguistic system considered as a common ancestor of historically attested related dialects. The structural peculiarities of a common linguistic model represent a set-theoretical sum of the structural patterns of individual dialects of the theoretically postulated ancestral language, set up on the basis of comparative and internal reconstruction. The derived system may be thus viewed as a metasystem with regard to the related historical languages.

Typological verification of a reconstructed linguistic system raises the probability of the theoretically assumed phonological and morphological patterns which reflect, in a first approximation, the structure of the ancestral language. Language typology is, then, a necessary prerequisite for all the reconstructive work, for diachronic linguistics in general.

On the other hand, diachronic linguistics may furnish important evidence for language typologies, contributing thus to typological studies. Reconstructed linguistic systems may also serve as objects of typological comparison, as individual items to be classified according to certain structural criteria.

Until recently, typological studies were mainly concerned with historical languages; typological comparison was confined to languages actually attested or recorded in written documents. In such typologies the units to be compared and classified were historical languages, and almost no attention was paid to a typological evaluation of reconstructed linguistic systems.

For a general typological theory, however, this kind of typology (i.e., the typology of reconstructed linguistic systems) is of vital significance: It yields important information on the invariant structural characteristics underlying different linguistic systems irrespective of the space and time of their distribution. Reconstructed language models, as well as artificial linguistic systems, must become objects of typological scrutiny and evaluation with a view to establishing isomorphic or allomorphic relationships between them.

As an impressive instance of isomorphic structural dependencies between different reconstructed language models we may adduce the linguistic systems of Proto-Kartvelian and Proto-Indo-European, which show striking structural parallelisms in their morphophonemic structure, in the morphemic patterns and their syntagmatic relationships.

Proto-Kartvelian (PK) is a linguistic system ancestral to a group of closely related Kartvelian (South Caucasian) languages consisting of Georgian (with an old literary tradition going back to the 5th century A.D.), Megrelian, Chan (or Laz), and Svan. We arrive at it on determining a set of correspondences on different structural levels between historical Kartvelian languages and through comparative and internal reconstruction of the individual dialects.

The Proto-Kartvelian phonemic system distinguishes between different classes of phonemes, which form a determined set of paradigmatic oppositions. Using the criterion of syllabicity, we arrive at a division of the whole set of phonemic units of Proto-Kartvelian into three different subsets or classes: (1) a class of phonemes functioning syntagmatically as syllabic elements only, i.e., as syllabics in all phonetic environments (VOWELS proper); (2) a class of phonemes functioning

syntagmatically as nonsyllabics only, i.e., as nonsyllabics in all phonetic environments (CONSONANTS proper); and (3) a class of phonemes functioning both as syllabics and nonsyllabics according to their syntagmatic positions, i.e., as syllabics in some phonetic environments, as nonsyllabics in others (SONANTS or RESONANTS). The system presented below is that of the stage of Proto-Kartvelian immediately before the division into dialects.

Each triplet of stops and affricates consists of a voiced (b, d, ʒ, ...), a voiceless [aspirate] (p, t, c, ...), and a glottalized (p', t', c', ...) phoneme. Affricates and fricatives distinguish a front series /ʒ c c' z s/, a back series /ʒ̣ č č' (ž) š/, and a mid series /ʒ<sub>1</sub> c<sub>1</sub> c'<sub>1</sub> z<sub>1</sub> s<sub>1</sub>/. The latter subsequently shifted to the back series (š-sibilants) in the Western dialectal area (Megrelo-Chan and Svan), but merged with the front series (s-sibilants) in the Eastern area (Georgian and its dialects).

Each sonant is manifested syntagmatically in the form of one of its allophones: syllabic (i, u, r, ...), or nonsyllabic (j, w, r, ...).

Such a threefold division of the phoneme inventory into the classes of consonants, vowels, and sonants (or resonants) is characteristic also of Proto-Indo-European, with typologically the same phonemic units in the classes of resonants and vowels proper.

In the class of consonants the triplets of PK stops, differentiated as voiced ~ voiceless (with aspiration as a phonemically redundant feature) ~ glottalized, may be compared typologically with the three-plosive system of Proto-Indo-European differentiating between voiced: voiceless: aspirates (with voice as a phonemically irrelevant feature).

The phonemic units of the class of sonants are characterized in Proto-Kartvelian by close structural similarity in their distributional patterns. The allophonic behaviour of these phonemes is determined syntagmatically by their phonetic environments made up of segmental or suprasegmental units and pause. Each of the two allophones of a sonant occurs only in definable phonetic environments and serves as its syllabic or nonsyllabic manifestation. The distribution of a syllabic allophone is complementary to that of its nonsyllabic

#### THE PK PHONEMIC SYSTEM

CONSONANTS:

b	p	d	t	ʒ	c	ʒ <sub>1</sub>	c <sub>1</sub>	ʒ̣	č	g	k	(g')	q
p'		t'		c'		c' <sub>1</sub>		č'		k'		q'	
				z	s	z <sub>1</sub>	s <sub>1</sub>	(ž)	š	γ	x		h

VOWELS:

e ē a ā o ō

SONANTS:

j	w	r	l	m	n	$\left[ \begin{array}{ccccc} i & u & r & l & m & n \\ j & w & r & l & m & n \end{array} \right]$

<sup>1</sup> For the reconstruction of Proto-Kartvelian see Th. V. Gamkrelidze and G. I. Machavariani, 1965.

counterpart, while the distributions of different syllabics or nonsyllabics overlap.

The sonants are syllabic in the following positions:

- (1) After a consonant and before pause, C\$#<sup>2</sup>;  
\*daq'u 'elbow', \*wop'l'o- 'sweat', \*čq'int'l'o- 'immature, unripe'.
- (2) In stem-final position after a consonant:  
\*z<sub>1</sub>ayl'o- 'dog', \*wašl'o- 'apple', \*z<sub>1</sub>ec<sub>1</sub>xl'o- 'fire'.
- (3) Between consonants, CSC;  
\*k'ud- 'tail', \*k'l'o<sub>1</sub>de- 'rock', \*g<sub>1</sub>z- 'long'.
- (4) After pause and before a consonant, #S\$C;  
\*l<sub>1</sub>bil- 'soft', \*l<sub>1</sub>šn- 'kiss', \*m<sub>1</sub>z<sub>1</sub>e- 'sun'.

The sonants are nonsyllabic in the following positions:

- (1) After pause and before a vowel, #SV;  
\*wašl'o- 'apple', \*jor- 'two', \*mat'l'o- 'worm'.
- (2) After a vowel and before pause, VS#;  
\*qan- 'plough', \*m<sub>1</sub>c<sub>1</sub>er- 'insect'.
- (3) Between a vowel and a consonant, VSC;  
\*ert- 'one', \*(g')anc'l'o- 'elder'.

In the position between a consonant and a vowel (C—V) we must reconstruct for the Western dialectal area syllabic allophones of the sonants, while for the Eastern area we assume nonsyllabics:

- \*m<sub>1</sub>šue- || \*m<sub>1</sub>šwe- 'son', \*txl'e- || \*txle- 'lees',  
\*c<sub>1</sub>xra- || \*c<sub>1</sub>xra- 'nine'.

When two sonants are in juxtaposition, one of them is syllabic, the other nonsyllabic. The choice of the allophone is determined by the character of the sonant and its surrounding. Thus the sequence /#rwV/ is realized as [#ɽwV] and [#ruV] indiscriminately: cf. /#rwa/ 'eight' → \*ɽwa- (Chan *orvo*, *ovro*; Svan *ara*; Georg. *rva*) and \*rua (Megr. *ruo*, *bruo*). /Cw/ before /r l m n/ is realized as [Cu], while the following /r l m n/ are nonsyllabic: cf. \*q'wer- 'testiculus' (Georg. *q'wer-*, Megr.-Chan *q'važ*) as against \*q'ur- 'id.' (Svan. *q'urnā-j*); \*s<sub>1</sub>w-a 'he drank' as against \*s<sub>1</sub>u-ma 'drinking'.

From the analysis of the distributional patterns of the PK sonants we infer that with respect to the positional relations of the sonants, a consonantal element *C* is structurally equivalent to pause # : # –C, C– ≠ C–C.

The allophonic variations of the PK sonants and their distribution at the stage of Proto-Kartvelian immediately before its division into dialects are reconstructed on the evidence of the behaviour of sonorants in the historical Kartvelian languages. These distributional patterns were obscured by later developments and phonetic changes of the syllabic allophones of sonants, yielding in Western dialects, as a result of vocalization,

sequences of vowel plus corresponding sonorant (liquid or nasal) in consonant function. These developments are closely parallel to those, which are assumed for the syllabic sonants in the Indo-European dialects.

The sonants /w/ and /j/, each with its two allophones, split in the historical Kartvelian dialects into two independent phonemic units: /w/ and /u/, /j/ and /i/, functioning as consonants and vowels respectively. The same is true of the syllabic allophones of /\*r \*l \*m \*n/, which split into a vocalic and a consonantal component. These processes led in the historical dialects to the elimination of the class of sonants and to an enrichment of the classes of consonants and vowels proper by new phonemic units.

The allophonic variations of the sonants were closely connected in the PK linguistic system with the mechanism of morphophonemic vowel alternation. The ablaut variations of vocalic phonemes determined the PK structure as a whole and were used, along with affixation, to form different grammatical and lexical categories. Combinations of morphemes into complex sequences obeyed definite rules of vowel gradation.

For example, the base of the transitive verb form \*dr-ek'- 'bend' is characterized by the zero-grade allomorph of the root morpheme compounded with the full grade of the suffix \*-ek', while the corresponding intransitive base \*der-k'- 'bend, stoop' represents the full-grade allomorph of the root and zero grade of the suffix.

Such variations of zero and full grades of the root and suffix form structurally well-defined patterns of ablauting verbal bases:

Transitive (present tense): \*dr-ek'- 'bend' (Georg. 1st sg. *v-drek'*, masdar *drek'-a* 'bending'; Megr. *dirak'-a* 'id. '); \*šr-et'- 'extinguish' (Georg. 1st sg. *v-šret'*, masd. *šret'-a*; Megr. masd. *škirat'-a*); \*k'-r-eb- 'collect' (Georg. *v-k'reb*, masd. *k'reb-a*).

Intransitive (aorist): \*der-k'- 'bend, stoop' (Georg. 1st sg. *v-derk'*, 2d sg. *s-derk'*); \*šer-t'- 'go out' (Georg. 1st sg. *v-sert'*, 2d sg. *h-šert'*); *k'-er-b-* 'gather' (Georg. 1st sg. *v-k'erb*, 2d sg. *h-k'erb*).

Further addition of a full-grade suffix to the base causes replacement of a preceding full-grade morpheme by its zero or reduced grade variant. Thus, the transitive base \*dr-ek'- has the aorist \*dr-ik'-e (Georg. 1st sg. *v-drik'-e*, 2d sg. *s-drik'-e*, 3d sg. *drik'-a*; Megr. 2d sg. *do-dirik'-u*), with the first suffixal morpheme manifested in its reduced grade before the full-grade suffix \*-e; the intransitive base \*der-k'- has the 3d sg. aor. \*d<sub>1</sub>-k'-a

<sup>2</sup> In the following formulas the symbol C stands for any consonant, V for any vowel; \$ and S for syllabic and nonsyllabic sonants, respectively, and # for pause.

(Georg. *drk'-a*, Megr. *dirk'-u*, Chan *druk'-u*) before the full-grade formant of the 3d sg. *\*-a*.

In a paradigmatic unit, changes of phonetic environment due to allomorphic alternations produce phonetic positions in which the sonants were actualized as syllabics or nonsyllabics. For example, in the form *\*der-k'* the sonant */\*r/* was non-syllabic (position *V—C*), while in the form with zero grade of the root and the derivational suffix (3d sg. aor. *\*d<sub>g</sub>-k'-a*) the same phoneme was syllabic (position *C—C*).

The allomorphic interchange of ablaut grades in the root and suffixal morphemes within a paradigm, as illustrated above, may be viewed as realizing the syntagmatic principle of monovocality, which governs the combination of morphemes into polymorphemic sequences. A polymorphemic form allows of only one morpheme in the full grade; other morphemes in the syntagmatic sequence are represented by their zero- and/or reduced-grade variants. In conformity with this principle, the addition of a full-grade formant to the base causes replacement of one of the preceding allomorphs by the zero or reduced grade.

The ablaut patterns presented above characterize not only the limited class of bimorphemic verbal bases. The delimitation of the conjugation types of verbs is based mainly on structural differences in ablaut models which determine the whole morpho-phonemic system of Proto-Kartvelian and account for the behaviour of the root and suffixal morphemes in a syntagmatic sequence. The principle of monovocality governs the machinery of derivation and inflexion and underlies the rules of combining morphemes into polymorphemic sequences.

Along with full, zero, and reduced grades, the morphophonemic system of Proto-Kartvelian requires a lengthened grade (*Dehnstufe*) to account for a number of aberrant verb forms in the historical Kartvelian languages which do not conform to the syntagmatic rules of monovocality, and consequently do not fit into the general morphophonemic pattern.

The lengthened grade characterizes mainly the system of primary verbs and represents an essential morphologic feature of a group of verbal bases with thematic aorist. There are three alternations:  $\check{e} \sim \bar{e}$ ,  $\check{o} \sim \bar{o}$ , and  $\emptyset \sim \bar{a}$ .

Alternation  $\check{e} : \bar{e}$

PRES. *\*-ber-* 'blow' (Georg. 1st sg. *v-ber-[av]*):

AOR. *\*-b<sub>er</sub>-e* (Georg. 1st sg. *v-ber-e*, Svan [*čw*]-*ad-bel-e*).

Alternation  $\check{o} : \bar{o}$

PRES. *\*-c<sub>1</sub>oc<sub>1</sub>-* 'creep' (Georg. 1st sg. *v-coc-[av]*):

AOR. *\*-c<sub>1</sub>o<sub>c</sub><sub>1</sub>-e* (Georg. 1st sg. *v-i-coc-e*; cf. Megr. *čoču-a* 'creeping').

Alternation  $\emptyset : \bar{a}$

PRES. *\*-c<sub>1</sub>l-ej* 'empty' (Georg. 1st sg. *v-cl-i*):

AOR. *\*-c<sub>1</sub>al-e* (Georg. 1st sg. *v-cal-e*, Megr. *go-v-čol-i*).

The syntagmatic principle of monovocality is now, in view of the lengthened grade, reformulated as follows: A polymorphemic sequence allows of only one morpheme in the normal grade (i.e., in the ablaut grade with a short vowel). The system of PK ablaut variations presented above was characteristic also of nominal bases. In the nominal system an especially widespread type of paradigmatic alternations was the interchange of normal and zero-grade allomorphs conditioned by the inflexional endings: *\*ṛk'erd-* : *\*ṛk'ṛd-* 'breast'; *\*cwar-* : *\*cur-* 'dew'; *\*žwar-* : *\*žur-* 'shaft'. The alternating nominal bases were preserved in Old Georgian (cf. *mk'erd-* : gen.sg. *mk'rd-isa*; *cwar-* : gen.sg. *cwr-isa*; *žvar-* : gen.sg. *žvr-isa* 'cross'). In other dialects one of the alternating forms spread to the whole paradigm, eliminating thus the original interchange of paradigmatic units: cf. Svan *muč'od* 'breast', Megr. *k'idir-* < *\*k'ird-* (both from the zero grade *\*ṛk'ṛd-*) \ Chan *mzguž*, Megr. *žgunžg-* 'shaft' (from the zero grade *\*žur-*).

An analysis of verbal and nominal bases in the Kartvelian languages, as well as the internal and comparative reconstruction of ancient Kartvelian forms makes it possible to present in general features the PK structural patterns which determined the shape of the radical and suffixal morphemes and the rules of their syntagmatic combinations into complex sequences. The structural principles underlying the formation of verbal and nominal bases in the Kartvelian languages constitute the theory of the PK root.

The main (statistically prevalent) canonical form of the PK root morpheme is of the shape *CVC-*, where *C* may be replaced by *S* (sonant in its nonsyllabic function). We thus obtain the following phoneme combinations: *CVC-*, *CVS-*, *SVC-*, and *SVS-*, where *V* may take one of the three values *\*e*, *\*a*, or *\*o*.

*CVC-*: *\*tes-* 'seed' (Georg. *tes-l-*; 1st sg. pres. *v-tes-[av]*)

*\*t'ep-* 'warm' (Georg. 1st sg. aor. med. [*gan-v-t'ep*])

*\*k'ac<sub>1</sub>-* 'man' (Georg. *k'ac-*, Megr. *k'oč-*; Svan *č'āš* 'husband')

\* Introvertive harmonic clusters are consonant sequences in which a nonvelar voiced, voiceless, or glottalized stop or affricate is followed by a homogeneous velar consonant.

*CVS*:- \**ber*- 'blow' (Georg. 3d sg. pres. *ber*-<sup>⌈</sup>*av*<sup>⌋</sup>-s)  
 \**ban*- 'wash' (Georg. 3d sg. pres. *i-ban*-s)  
 \**c<sub>1</sub>ol*- 'wife' (Georg. *col*-, Megr.-Chan *čil*-; Svan  
*čoš*- 'coitus')

*SVC*:- \**wed*- 'go' (Georg. 2d sg. aor. <sup>⌈</sup>*c'ar*<sup>⌋</sup>-x-wed)  
 \**wac<sub>1</sub>*- 'ram' (Georg. *vac*-, Megr. *oč*-, Svan *ɣwaš*)

*SVS*:- \**wal*- 'walk' (Georg. 3d sg. pres. *val*-s)  
 \**jor*- 'two' (Georg. *or*-, Megr. *žir*-, Chan *žur*-, Svan  
*jor*-).

A special type of root structure is presented by PK forms with a so-called introvertive harmonic consonant cluster instead of a simple consonant or sonant. Such clusters are viewed in the root structure as homogeneous units functionally identical with the simple consonant.<sup>1</sup> In the root structure the symbol *C* covers such clusters, too. The suffixal morpheme is of the pattern -*VC* or -*VS*.

-*VC*: \**-ed*, \**-et*, \**-et'*, \**-eb*, \**-eš*, etc,  
 -*VS*: \**-el*, \**-er*, \**-em*, \**-en*, \**-ew*, \**-ej*.

The variable *V* may take the value \**a*, as well as the value \**e*. The value \**o* in suffixal morphemes is very rare, and may be interpreted as a result of contraction of \**e* or \**a* with preceding \**w*.

A small group of suffixal morphemes is characterized by the structure -*V*(univocalic suffixes). This pattern may be viewed as a variant of the structure -*VC* where the symbol *C* takes the value of zero.

Ablaut alternations of vowels represents one of the main morphophonemic characteristics of PK word forms. Each Kartvelian morpheme manifests itself in the shape of different allomorphs according to ablaut grades. Allomorphs of a Kartvelian morpheme constitute a group of morphemic variants that distinguish, in different morphologic categories, forms with and without a vowel. There are, that is, allomorphs in full or zero grade. Full grade implies both normal grade (i.e., a grade with a short vowel) and lengthened grade (i.e., a grade with a long vowel). Beside zero grade, there is a reduced grade characterized by the sonant [\*i] (resulting from the apophony of the normal grade: \**e*→\**i*) and identified formally with zero (absence of a vowel).

The ablaut variations of morphemes which motivate allomorphic alternation within one paradigm (in word inflexion and word formation) are conditioned mainly by the syntagmatic rules of linear arrangement of morphemes. A root morpheme compounded with a derivational suffix yields extended forms (bases) characterized by two main ablauting states:

State I: Root morpheme in normal grade, suffix zero;  
 State II: Suffix in normal grade, root zero.

These alternating states of the complex (bimorphemic) verbal bases yield well-defined structural patterns, with the vocalisms of radical and suffixal morphemes strictly differentiated:

STATE I	STATE II
* <i>der-k</i> '-	* <i>dr-ek</i> '-
* <i>šer-t</i> '-	* <i>šr-et</i> '-
* <i>k'er-b</i> -	* <i>k'r-eb</i> -

Similar structural patterns are evidenced by the bimorphemic nominal bases:

STATE I	STATE II
* <i>s<sub>1</sub>ax-l</i> - 'house'	* <i>km-ar</i> - 'husband'
* <i>z<sub>1</sub>aɣ-l</i> - 'dog'	* <i>cm-el</i> - 'fat'
* <i>k'wen-l</i> - 'marten'	* <i>z<sub>1</sub>m-ar</i> - 'vinegar'

But any nominal base is sharply distinguished from a verbal base in that it is always fixed in the same ablauting state, whereas bimorphemic verbal bases have alternating states according to the paradigmatic pattern. This is one of the main formal differences setting apart bimorphemic verbal bases from nominal bases of the same morphemic composition.

Addition of a full-grade suffix to a base in State I or II results in the replacement of the preceding normal grade by a zero- or reduced-grade variant, in accordance with the rule allowing only one normal-grade morpheme in a polymorphemic sequence (the principle of monovocality):

STATE I	STATE II
* <i>der-k</i> '- → * <i>d<sub>ɛ</sub>-k</i> '-a	* <i>dr-ek</i> '- → * <i>dr-ik</i> '-e
* <i>šer-t</i> '- → * <i>š<sub>ɛ</sub>-t</i> '-a	* <i>šr-et</i> '- → * <i>šr-it</i> '-e
* <i>k'er-b</i> - → * <i>k'<sub>ɛ</sub>-b</i> -a	* <i>k'r-eb</i> - → * <i>k'r-ib</i> -e

Reconstruction of PK phonological and morphological patterns, reflecting a stage of Proto-Kartvelian before its differentiation into dialects, gives us a basis to judge the functional role of ablaut relations and the character of vowel gradation in the paradigmatic structure of word formation and word inflexion.

The mechanism of PK ablaut as a system of morphophonemic alternations apparently originated as a result of phonological processes, which had been operative at earlier stages of Proto-Kartvelian. We may assume that these processes gave rise to various types of vowel interchange, purely phonological in character, which were then morphologized by the loss of the conditioning phonetic factors. A genetically phonetic phenomenon became functional as it lost its phonological motivation. The system of prefixation was only partly

involved in this process; on the whole, prefixes maintained their ancient structural relations, which cannot be described consistently in terms of ablaut variations.

It is immediately apparent that the Proto-Kartvelian structures described above are on the whole identical with Proto-Indo-European patterns at the stage with quantitative ablaut changes. The phonemic structure of morphemes and the syntagmatic relations between them in Proto-Indo-European (as presented by Émile Benveniste) and in Proto-Kartvelian (as outlined above) can be described in the same structural terms.

The IE root is monosyllabic, consisting of the fundamental vowel /*e*/ between two different consonants or sonants: *CVC*-, *SVC*-, *CVS*-, and *SVS*-. The suffix is of the pattern -*VC* or -*VS*. A special kind of suffix is presented by the pattern -*C*, specified as enlargement and distinguished from suffixes proper in having a fixed consonantal form (cf. the opposite kind of univocalic suffixes of the fixed form -*V* in Proto-Kartvelian).

From the root are made two ablauting forms by means of suffixes:

Form I: Root in full grade, suffix zero;

Form II: Root zero, suffix in full grade.

Every root may thus have two expanded forms:

I	II
* <i>pér-k</i> - (Lith. <i>peršù</i> )	* <i>pr-ék</i> - (Lat. <i>precor</i> )
* <i>tér-H<sub>2</sub></i> - (Hitt. <i>tarḫ-</i> )	* <i>tr-éH<sub>2</sub></i> - (Lat. - <i>trare</i> )
* <i>pét-r</i> - (Skt. <i>pátra</i> -)	* <i>pt-ér</i> - (Gk. <i>pterón</i> )

A verbal base in state II may undergo further expansion by an enlargement. From the root \**per*- we obtain I: \**per-k*- and II: \**pr-ek*-, and form II may be further expanded as in \**pr-ek-s*- (Skt. *prákṣ-*). Further addition of suffixes or enlargements points to a nominal base.

Addition of a full-grade suffix to a base in state II causes transition of the preceding full-grade morpheme to its zero grade variant:

I: \**pel-t*-, II: \**pl-et-H<sub>2</sub>*-, and \**pl-et-H<sub>2</sub>*- + *-éw-* → \**pl<sub>0</sub>-t-H<sub>2</sub>-éw-* (Skt. *pl<sub>0</sub>thúḥ*, Gk. *plátús*). Such a transition of a preceding full-grade morpheme to its zero grade variant under the impact of the following full-grade and accented suffix is one of the main characteristics of the morphophonemic relationships in Proto-Indo-European:

I \**dér-w*- : II \**dr-éw*- → \**dr-w-és* (Gk., gen. *druós*);  
\**dr-w-én*- (Av. *drvan-*) → \**dr-u-n-es* (Ved., gen.sg. *drúnaḥ*);

I \**kér-w*-: II \**kr-éw* → \**kr-w-ér*- (Gk. *kruerós*);

I \**kér-t*-: II \**kr-ét*- → \**k<sub>ṛ</sub>-t-ér*- (Gk. *kraterós*); \**k<sub>ṛ</sub>-t-és*- (Gk. *krátos*).

It is easy to see that the syntagmatic behaviour of polymorphemic forms in PIE fully corresponds to the structural rules of combination of morphemes into complex sequences in Proto-Kartvelian characterized as the “principle of monovocality”. The phonemic make-up of morphemes and the rules of their syntagmatic combinations in Proto-Kartvelian and Proto-Indo-European are identical in their general features. The Proto-Kartvelian morphonological system is, in a sense, isomorphic to that of Proto-Indo-European.

In a more rigorous usage of the terms, we should characterize both systems as homomorphic, rather than isomorphic, that is as systems whose elements may be brought into a one-to-one correspondence, with identical relations between elements, only after their being assigned to certain classes in the individual systems. Thus, a mapping from the elements of one system to the elements of the other system may be produced, and renaming the elements of one system by the corresponding elements of the other we obtain from one system the other and vice versa.

The isomorphism between the Kartvelian and the Indo-European morphonological systems raises new questions concerning the historical connections of the Kartvelian languages with Indo-European.

It is as yet not clear whether the established structural similarities between Kartvelian and Indo-European must be traced back to their common origin (in the sense of Nostratic Languages), or whether this isomorphism ought to be assigned to their membership in a common typological class (not implying of necessity any historical connections between them and pointing to some general rules of sound-patterned sign formation), or in a common areal group (assuming close contacts at a certain period between Proto-Kartvelian and some Indo-European dialects).

ენათმეცნიერება

## ქართველური და ინდოევროპული: რეკონსტრუირებულ სისტემათა ტიპოლოგიური შეპირისპირება

თამაზ გამყრელიძე

აკადემიის წევრი, გ. წერეთლის აღმოსავლეთმცოდნეობის ინსტიტუტი  
საქართველოს მეცნიერებათა ეროვნული აკადემია

სტატიაში განიხილება ქართველური და ინდოევროპული პროტო-ენების სტრუქტურული იზომორფიზმის პრობლემა და დასმულია საკითხი ამგვარი სტრუქტურულ-ტიპოლოგიური მსგავსების წარმომადგენლობის თაობაზე.

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